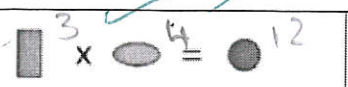
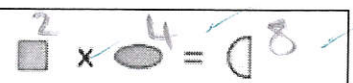
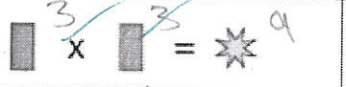
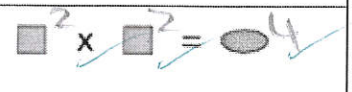
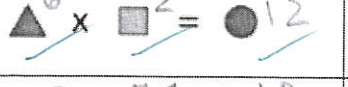
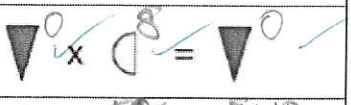
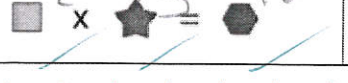
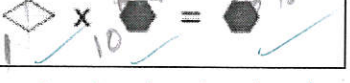
4/7/17 | 20: Investigate shape problems.

Shape Products

The coloured shapes stand for eleven of the numbers from **0** to **12**. Each shape is a different number.

Can you work out what they are from the multiplications below?

A		B	
C		D	
E		F	
G		H	

0 1 2 3 4 5 6 7 8 9 10 11 12

I started with C and D as they make square numbers so

$C \times C = e$

$e = C^2$

Possible square numbers from 0-12 are:

$1 \times 1 = 1$

$2 \times 2 = 4$

$3 \times 3 = 9$

It can't be 1×1 as $1 \times 1 = 1$ so $C \times C = C$ but $C \times C = e$ so I just picked $3 \times 3 = 9$ for C and $2 \times 2 = 4$ for D. I put all of the shapes that = 3, 9, 4 and 2 down and found out

$3 \times 4 = \bigcirc$

$3 \times 4 = 12$ so $\bigcirc = 12$

$? \times 2 = 12$

$6 \times 2 = 12$

$2 \times 4 = \square$

$2 \times 4 = 8$

$\triangledown \times 8 = \triangledown$

only 0 fits

numbers we've used:

0 1 2 3 4 5 6 7 8 9 10 11 12

used used used used used used used used used

So we have 1, 5, 10 and 11

$2 \times ? = ?$ (G)

If you ~~**~~ x 1 number by 2 it is always even.

We have 1 even number left, 10

$2 \times ? = 10$ $? = ★$

$2 \times 5 = 10$

so now we just have 5, 11 and 1

diamond hexagon hexagon

$? \times 10 = 10$

$1 \times 10 = 10$

overall:

 rectangle 3

 oval 4

 circle 12

 spikey thing 9

 triangle 6

 square 2

 star 5

 hexagon 10

 semicircle 8

 isosceles triangle 0

 diamond 1